UNIVERSITÉ
Concordia
UNIVERSITY

Department of Mechanical & Industrial Engineering

Industrial Engineering

www.me.concordia.ca

Industrial Engineering

Industrial engineering concerns the design, development, implementation, and evaluation of integrated systems of people, knowledge, equipment, energy, and material. Industrial engineering draws upon the principles and methods of engineering analysis and synthesis, as well as mathematics, physical, and social sciences. Industrial engineers work to eliminate wastes of time, money, materials, energy, and other resources. Industrial engineers also serve as a bridge between customers and design and manufacturing engineers.

Why Choose Industrial Engineering at Concordia?

Industrial Engineering brings together a diverse base of mathematical and scientific knowledge to design, improve, and install integrated systems of people, material, information, equipment, and energy. They have the role to analyse operational processes and deliver performance improvements that allow the customer to receive his/her end product in less time, with higher quality and at a reduced cost. It is well known that "Engineers make things, Industrial Engineers make things better!" As you can image, just about every organization has a system that enables it to function. Hence, the job opportunities for Industrial Engineers are not only restricted to engineering firms. Industrial engineering skills can be used in hospitals, banks, airlines, transportation services and retail stores. At Concordia University, Industrial Engineering is integrated with the Mechanical Engineering department allowing the students to better understand technical processes.

Students in Industrial Engineering at Concordia University not only benefit in learning theoretical views of production planning, engineering economics, computer integrating manufacturing, facilities design, human factors and ergonomics, simulation, operations research, statistics, stochastic and quality control, they also have the opportunity to learn how to apply the theory in internships with business strategies such as Lean manufacturing, Six Sigma and Theory Of Constraints (TOC). Internships are provided to the students from well-known organizations like the Concordia Co-Op program or Concordia's Institute of Aerospace

Design and Innovation (CIADI) where jobs are offered in leading companies in Montreal, France, Germany, Italy, Portugal or Poland. Industrial Engineering Program at Concordia University is the only English program in Quebec.

Companies Which Hire Concordia Industrial Engineering Graduates.

Once graduating from our program, you will be ready for a career in many areas such as:: Ergonomist, Facilities Designer, Manufacturing Systems Engineer, Manufacturing or Operations Supervisor, Operations Analyst, Process Engineer, Quality Control Specialist/Engineer, Safety Engineer, Space Planner, Supply chain manager, Logistic planner, Aircraft fleet and crew scheduler.

Wyeth Pharmaceuticals
Kraft
Aldo Group
Atomic Energy of Canada Limited
Schneider Electric
C & D Zodiac Aerospace
Pratt & Whitney of Canada,
Bombardier Aerospace
Bell Helicopter
CAE Electronics
General Motors
Spar Aerospace
General Electrics
Air Canada
Transport Canada
Bendix-Avelex
CDI Aerospace
ComDev
IMP Aerospace
Canadian Space Agency
National Research Council
Natural Resources Canada
AirScience Technologies
Aesus Systems
Alcan Inc.
Canada Green Technologies
Atlantic Alumninum Ltd.
Medical International Technologies
HTS Engineering
Matrox Electronic Systems
Racan Carrier
SKF Canada Ltd.
Torr Canada Ltd.
IBM Canada Ltd.
Silgan Plastics Canada Inc.
Reebok-CCM
Dassault Systèmes Inc.
Ivaco Rolling Mills

Program Structure

The B. Eng. in Industrial Engineering is a 120-credit program which normally takes four years of full-time study after CEGEP. Courses in this program are combination of engineering core, Industrial engineering core and technical electives as:

- The "**Engineering Core**" (30.5 credits) includes engineering fundamentals such as engineering mathematics, probability and statistics in engineering, engineering management and economics, health and safety and professional practice.

- The "**Industrial Engineering Core**" (78.5 credits) includes the fundamentals of Industrial Engineering such as Production and Manufacturing Systems, Simulation of Industrial Systems, Production Engineering, Industrial Operations Research, Stochastic Models in Industrial Engineering, Quality Control and Reliability, Human Factors Engineering, Facilities Design and Material Handling Systems, Inventory Control.

- **Technical Electives** (11 credits) enable students to endeavour different directions based on their career objectives through courses such as Management Information Systems, Decision Support Systems, Fundamentals of Electronic Business, Safety Engineering, Product Design and Development, Decision Models in Service Sector, Advanced Concepts in Quality Improvement, Fundamentals of Control Systems

Industrial Engineering Co-op Program

The co-op program in Industrial Engineering formally integrates a student's academic studies with work experience in a co-operative industrial organization. The program consists of study and work terms. Students undertake full-time jobs during the work terms in appropriate external organizations, thereby complementing their academic knowledge acquired in the classroom.

For more information about Industrial Engineering co-op program, please visit http://coop.concordia.ca/programs/engcompsci/industrial.shtml

Engineering Core

ELEC 275 Principles of Electrical
EMAT 213 Engineering Ordinary Differential Equations
EMAT 233 Advanced Calculus
ENCS 282 Technical Writing and Communication
ENGR 201 Professional Practice and Responsibility
ENGR 202 Sustainable Development and Environmental Stewardship
ENGR 301 Engineering Management Principles and Economics
ENGR 371 Probability and Statistics in Engineering
ENGR 391 Numerical Methods in Engineering
ENGR 492 Impact of Technology on Society

Industrial Engineering Core

ACCO 220 Financial and Managerial Accounting
ENCS 245 Mechanical Analysis
ENGR 244 Mechanics of Materials
ENGR 251 Thermodynamics I
ENGR 311 Transform Calculus and Partial Differential Equations
INDU 211 Introduction to Production and Manufacturing Systems
INDU 311 Simulation of Industrial Systems
INDU 320 Production Engineering I
INDU 323 Industrial Operations Research
INDU 330 Engineering Management
INDU 371 Stochastic Models in Industrial Engineering
INDU 372 Quality Control and Reliability
INDU 411 Computer Integrated Manufacturing
INDU 412 Human Factors Engineering
INDU 420 Production Engineering II
INDU 421 Facilities Design and Material Handling Systems
INDU 423 Inventory Control
INDU 430 Operations Research II
INDU 490 Capstone Industrial Engineering Design Project
MECH 211 Mechanical Engineering Drawing
MECH 215 Programming for Mechanical and Industrial Engineers
MECH 221 Materials Science
MECH 311 Manufacturing Processes
MECH 313 Machine Drawing and Design
MECH 370 Modelling, Simulation and Analysis of Physical Systems

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